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From: Commanding Officer, Engineering Field Activity, West, Naval Facilities Engineering Command
To: Distribution

Subj: NAVAL AIR STATION ALAMEDA BACKGROUND DATA SETS

Ref: (a) NAS Alameda Background Data Set meeting between Engineering Field Activity West, U.S. Environmental Protection Agency, California Regional Water Quality Control Board, and California Department of Toxic Substances Control February 26, 1997
(b) Final NAS Alameda Statistical Methodology for Background Comparisons
(c) NAS Alameda Baseline Human Health Risk Assessment Workplan

Encl: (1) Revised Naval Air Station Alameda Background Data Sets including the 80th lower confidence limit on the 95th percentile of the distribution for inorganic chemicals
(2) Calculations for the outlier tests
(3) Minutes from the February 26, 1997 Background Data Set meeting at NAS Alameda

1. The Navy has calculated the 80th lower confidence limit on the 95th percentile of the distribution for inorganic chemicals on the NAS Alameda background data set discussed at ref (a). The Navy has also performed the requested outlier tests on zinc in the blue area, beryllium in the pink area, arsenic, lead and silver in the yellow area. The background data set has been modified to reflect the results of the outlier tests as agreed to during reference (a). The results are presented in enclosures (1) and (2) respectively.

2. The Rosner's test was used for evaluating zinc, and beryllium, while Dixon's test was used for arsenic, and silver. The Rosner's test requires at least 25 detected results for application while Dixon's test is more appropriate for sets with less than 25 detected results. The Rosner's test calculates a test value using the mean and standard deviation of the data set after removal of the suspected outlier. The calculated test value is then compared to a critical value corresponding to a particular level of significance and sample size. The Dixon's test examines the suspected outlying value relative to the range of values and the next closest value to the suspected outlier. The test value calculated in the Dixon's test is also compared to a critical value corresponding to a desired level of significance and the sample size. In both cases, if the test value exceed the critical value, the extreme value is considered an outlier. The test is repeated, iteratively removing the most extreme value, until the test value no longer exceeds the critical value. Both of these tests are described in detail in *EPA's Guidance for Data Quality Assessment (EPA 1996)* and either may be used with normally or lognormally distributed data.

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3. Using these tests, it appears that the arsenic value of 33 milligrams per kilogram (mg/kg) in the yellow area is not an outlier. The highest value of zinc (316 mg/kg at sample identification number M-BG3-000) in the blue area and of beryllium in the pink area (2.29 mg/kg) are outliers at alpha = 0.05. The questioned value of silver (30 mg/kg at sample identification number B12-08-000) in the yellow area was not confirmed as an outlier using either the Rosner's test, so the Dixon's test was performed on untransformed and lognormally transformed data. Using untransformed data, the value of 30 mg/kg appeared to be an outlier at alpha = 0.05 , but not at alpha = 0.01. Using log transformed data, the value of 30 mg/kg is not an outlier at either alpha = 0.05 or = 0.01. Therefore, this value will be retained because the results of the outlier test are not unequivocal, and it is possible that the distribution of silver is lognormal. Additionally, there is no site history to indicate that silver would be site related at any part of the base. Further, the inorganic results associated with sample 280-S16-028 (lead at 752 in the yellow area) were removed as agreed during reference (a). Removal of these samples decreases the inorganic chemical sample sizes to 88 for the blue area, 50 for the pink area and 55 for the yellow area. Data enclosure (1) (tables 1 through 3) have been revised accordingly.

4. The 80^{th} lower confidence limit on the 95^{th} percentile of the distribution for inorganic chemicals were calculated using the formula presented in reference (b) (*Final NAS Alameda Statistical Methodology for Background Comparisons)*. The calculation was performed on untransformed data for normally distributed data and for data for which a distribution could not be determined. For lognormally distributed data, the 80^{th} lower confidence limit on the 95^{th} percentile calculation was performed on the natural logarithm transformed data. These concentrations were calculated after removal of sample M-BG3-000 in the blue area, B12-08-00 in the pink area, and 2870-S16-28 in the yellow area. A value of one half the sample quantitation limit was substituted for nondetect results. The Navy will be using the 80^{th} lower confidence limit on the 95^{th} percentile of the distribution for inorganic chemicals as outlined in the reference (b).

5. During reference (a) the agencies expressed concerns regarding PAHs as background constituents due to the frequency of detections at NAS Alameda. As a result of those concerns the Navy reviewed the spatial distribution of PAHs in both the IR and EBS data as well as the frequency of detection of the PAHs in the EBS data set as well as the focus of the initial EBS sampling. The low frequency of detection of the IR data for PAHs is possibly the result of high detection limits. The detection limits on older data sets may be elevated due to high organic content of the soil or soil matrix interference. Further, laboratory detection limits have decreased due to better methodologies. Since PAHs were not the primary focus of these samples, fewer efforts were made to achieve the lowest possible detection limits. Last, the frequency that PAHs were detected is similar to the frequency of detection in trace minerals such as antimony, thallium, silver, selenium, and even mercury;

this low frequency of detection is simply a function of soil matrices. Based upon the review of the IR and EBS data the Navy will provide a table of the PAH data sets as reference values vice background values in the Remedial Investigation Report. The PAH values will not have the bright line test or other statistics performed. These values will be carried through the risk assessment and considered in risk management decisions.

6. The Navy is proceeding with the background and COC evaluation as outlined in reference (b) and (c). The Navy would like to thank you for your participation in the selection of the background data set and anticipates further progress and team work in the environmental programs at NAS Alameda. Please call me at 415-244-2516 or FAX at 415-244-2654 for questions or comments.

Original signed by:

CAMILLE GARIBALDI
By direction

Distribution:
NAS Alameda (Attn: Steve Edde)
California Regional Water Quality Control Board (Attn: Lyn Suer)
U.S. Environmental Protection Agency (Attn: Anna-Marie Cook)
U.S. Environmental Protection Agency (Attn: Tom Huetteman)
U.S. Environmental Protection Agency (Attn: James Ricks)
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California Department of Toxic Substances Control (Attn: Tom Lanphar)
California Department of Toxic Substances Control (Attn: David Rist)
California Department of Toxic Substances Control (Attn: Dan Murphy)
California Department of Toxic Substances Control (Attn: Jim Polisini)

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PRC Environmental Management, Inc. (Attn: Duane Balch/Theresa Lopez)

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ALAMEDA POINT
SSIC NO. 5090.3

BACKGROUND DATA SETS AND RANGES

DATED 11 FEBRUARY 1997

IS FILED AS ADMINISTRATIVE RECORD NO.
<u>N00236.001376</u>

TABLE 1
NAS ALAMEDA
BACKGROUND DATA FOR BLUE AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Inorganic Chemicals (mg/kg)									
Aluminum(2)	NA	88/88	2,880	26,800	5,703	1.6	7,078	0.06	15,509
Antimony(3)	0.46-9.2	2/88	0.89	1.0	1.8	1.3	2.0	0.71	4.4
Arsenic(2)	0.61-13	33/88	0.74	23.0	2.2	2.9	4.8	1.3	19.2
Barium(1)	24-25	85/88	0.30	198	48.6	32.4	55.5	0.67	114.9
Beryllium(1)	0.2-1.3	25/88	0.09	0.77	0.32	0.21	0.36	0.67	0.76
Cadmium(1)	0.06-1.3	29/88	0.1	0.82	0.31	0.23	0.36	0.73	0.78
Calcium(2)	NA	88/88	1,360	19,200	3,033	1.9	4,181	0.08	10,958
Chromium(1)	NA	88/88	11.4	81.7	33.6	13	36.4	0.39	60.1
Cobalt(1)	3.9-6.8	66/89	1.9	14	5.0	2.7	5.6	0.54	10.6
Copper(2)	5.8-6.3	83/89	4.2	89.4	10.4	2.0	15.1	0.30	42.7
Iron(1)	NA	88/88	760	26,900	10,013	5,072	11,087	0.51	20,390
Lead(2)	1.4-6.8	27/88	1.3	41	3.2	2.2	5.2	0.66	16.1
Magnesium(2)	NA	88/88	1,510	42,400	2,557	1.6	3,159	0.06	6,858
Manganese(2)	NA	88/88	50	1,060	126	1.7	160	0.11	365
Nickel(2)	NA	88/88	11.6	88.5	26.9	1.5	31.9	0.13	63.4

TABLE 1 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR BLUE AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Potassium(2)	610	87/88	310	6,382	800	1.6	997	0.07	2,203
Selenium(3)	0.42-13	1/88	5.7	5.7	2.9	2.1	3.3	0.72	7.1
Silver(3)	0.18-6.5	2/88	0.44	0.61	0.95	1.2	1.2	1.2	3.4
Sodium(2)	288-650	68/88	88.1	3,510	299.8	2.2	473.1	0.14	1,473
Thallium(3)	0.36-13	1/88	5.3	5.3	2.4	2.2	2.8	0.93	6.9
Titanium(1)	NA	66/66	223	1,020	408.4	145.8	444.3	0.36	706.7
Vanadium(1)	NA	88/88	12.8	62.3	22.4	8.8	24.2	0.40	40.5
Zinc(2)	NA	88/88	14	84	26.2	1.5	31	0.13	61.0
Polycyclic Aromatic Hydrocarbons (ug/kg)									
Acenaphthene(3)	83-14,000	1/85	130	130	293.1	743.2	453.5	2.5	NA
Anthracene(3)	83-14,000	2/85	59	390	294.2	743.5	454.7	2.5	NA
Benzo(a)anthracene(4)	100-14,000	8/85	61	1,000	290.1	747.9	451.5	2.6	NA
Benzo(a)pyrene(2)	140-14,000	11/85	48	1,300	208.4	1.8	277.3	0.11	NA
Benzo(b)fluoranthene(2)	100-14,000	9/85	66	760	202.4	1.8	273.9	0.11	NA
Benzo(g,h,i)perylene(4)	170-14,000	6/85	140	950	304.6	745.8	465.6	2.4	NA
Benzo(k)fluoranthene(2)	100-14,000	6/85	100	1,100	208.1	1.8	280.9	0.11	NA

TABLE 1 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR BLUE AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Chrysene(1)	100-14,000	11/85	58	1,300	288.9	752.6	451.3	2.6	NA
Dibenzo(a,h) anthracene(3)	170-14,000	1/85	230	230	296.4	742.4	456.7	2.5	NA
Fluoranthene(2)	83-14,000	12/85	54	2,000	198.2	1.9	284.2	0.13	NA
Fluorene(3)	83-14,000	1/85	100	100	292.7	743.3	453.2	2.5	NA
Indeno(1,2,3-c,d)-pyrene(2)	170-14,000	6/85	120	930	215.2	1.7	279.3	0.10	NA
Naphthalene(3)	83-14,000	1/85	35	35	292.3	743.5	452.8	2.5	NA
2-Methylnaphthalene(3)	100-14,000	1/85	320	320	294.2	742.9	454.6	2.5	NA
Phenanthrene(2)	83-14,000	8/85	27	1,600	196	2.0	284.2	0.13	NA
Pyrene(1)	83-14,000	12/85	65	2,500	343.4	785.3	484.6	2.3	NA

Notes:

SQL	Sample Quantitation Limit
95 UCL	95 percent Upper Confidence Limit of the Mean Concentration
CV	Coefficient of Variation
80LCL/95th percentile	80th percent Lower Confidence Limit of the 95th percentile of the distribution
NA	Not applicable
mg/kg	milligrams per kilogram
ug/kg	micrograms per kilogram

(1) Data normally distributed

TABLE 1 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR BLUE AREA
DATA SUMMARY

(2) Data lognormally distributed. Calculated CV and 80LCL/95 for natural logarithm-transformed data.

(3) Too few detections to determine distribution. Calculated CV and 80LCL/95th percentile from arithmetic mean and standard deviation.

(4) Data are not normally or lognormally distributed. Calculated CV and 80LCL/95th percentile from arithmetic mean and standard deviation.

TABLE 2
NAS ALAMEDA
BACKGROUND DATA FOR PINK AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Inorganic Chemicals (mg/kg)									
Aluminum(2)	NA	55/55	1,760	22,600	5,231	1.6	6,528	0.05	12,930
Antimony(1)	0.46-11.0	18/55	0.7	8.6	2.2	1.8	2.7	0.84	5.7
Arsenic(2)	0.59-10	45/55	0.44	15.6	1.8	2.4	3.1	1.4	8.7
Barium(2)	NA	55/55	6.9	156	36.0	1.7	47.4	0.15	103
Beryllium(1)	0.15-1.0	28/55	0.25	1.47	0.50	0.35	0.60	0.71	1.2
Cadmium(2)	0.08-1.0	11/55	0.1	3.2	0.19	2.7	0.42	0.59	1.33
Calcium(2)	NA	55/55	816	66,600	2,913	2.1	4,686	0.09	12,513
Chromium(1)	NA	55/55	15.6	66.7	30.4	9.9	33.1	0.33	50.0
Cobalt(4)	3.96-5.7	48/55	3.0	49.7	6.1	6.7	7.9	1.1	19.3
Copper(2)	8.8-10.2	52/55	3.1	49.1	7.5	1.8	10.5	0.29	24.3
Iron(2)	NA	55/55	4,500	27,900	9,365	1.5	11,230	0.04	20,394
Lead(2)	1.9-3.0	51/55	0.47	165	4.1	2.8	9.9	0.01	32.6
Magnesium(2)	NA	55/55	1,290	8,800	2,627	1.5	3,172	0.05	5,969
Manganese(2)	NA	55/55	55.5	748	126.1	1.7	167.6	0.11	363.1
Mercury(2)	0.06-0.27	7/54	0.057	2.71	0.063	2.4	0.12	0.31	0.34

TABLE 2 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR PINK AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Nickel(2)	NA	55/55	11.5	80.4	25.8	1.4	30.1	0.10	49.7
Potassium(2)	NA	55/55	209	2,480	683	1.5	819	0.06	1,523
Silver(2)	0.18-1.47	11/55	0.32	5.6	0.30	2.5	0.58	0.74	1.73
Sodium(2)	NA	55/55	62.6	1,580	335.9	1.9	503.4	0.11	1,251
Titanium(3)	NA	1/1	518	518	518	NA	NA	NA	NA
Vanadium(1)	NA	55/55	10.5	55.3	22.6	9.0	25.1	0.40	44.6
Zinc(2)	18	54/55	10	191	22.6	1.7	29.2	0.16	61.5
Polycyclic Aromatic Hydrocarbons (ug/kg)									
Acenaphthylene(3)	70-3,400	1/56	150	150	121.6	226.2	182.3	1.9	NA
Anthracene(3)	70-3,400	1/56	240	240	123.2	226.8	184.1	1.8	NA
Benzo(a)anthracene(3)	100-3,400	1/56	1,600	1,600	497.1	2,264.3	1,105.0	4.6	NA
Benzo(a)pyrene(3)	140-3,400	1/56	2,600	2,600	186.4	394.9	292.4	2.1	NA
Benzo(b)fluoranthene(3)	100-3,400	1/56	2,300	2,300	168.1	366.1	266.4	2.2	NA
Benzo(g,h,i)perylene(3)	160-3,400	1/56	1,700	1,700	177.1	300.4	257.7	1.7	NA
Benzo(k)fluoranthene(3)	100-3,400	1/56	620	620	138.1	232.9	200.6	1.7	NA

TABLE 2 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR PINK AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Chrysene[3]	100-3,400	1/56	1,500	1,500	153.8	288.9	231.4	1.9	NA
Fluoranthene[3]	70-3,400	3/56	34	3,600	207.5	477.0	355.6	2.3	NA
Indeno(1,2,3-c,d)-pyrene [3]	160-3,400	1/56	1,800	1,800	178.8	309.8	262.0	1.7	NA
Naphthalene[3]	70-3,400	1/56	99	99	120.7	226.2	181.4	1.9	NA
Phenanthrene[3]	70-3,400	2/56	240	2,200	131.3	291.1	209.4	2.2	NA
Pyrene[3]	70-3,400	3/56	210	6,100	240.5	831.0	463.5	3.5	NA

Notes:

SQL — Sample Quantitation Limit
95 UCL — 95 percent Upper Confidence Limit of the Mean Concentration
CV — Coefficient of Variation
80LCL/95th percentile — 80th percent Lower Confidence Limit of the 95th percentile of the distribution
NA — Not applicable
mg/kg — milligrams per kilogram
ug/kg — micrograms per kilogram

(1) Data normally distributed
(2) Data lognormally distributed. Calculated CV and 80LCL/95 for natural logarithm-transformed data.
(3) Too few detections to determine distribution. Calculated CV and 80LCL/95 from arithmetic mean and standard deviation.
(4) Data are not normally or lognormally distributed. Calculated CV and 80LCL/95 from arithmetic mean and standard deviation

TABLE 3
NAS ALAMEDA
BACKGROUND DATA FOR YELLOW AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Inorganic Chemicals (mg/kg)									
Aluminum[1]	NA	50/50	20	13,300	6,119	2,543	6,841	0.42	11,091
Antimony[1]	2.5-7.3	3/50	2.8	3.6	3.0	0.61	3.1	0.21	4.2
Arsenic[1]	10-12	21/50	1.1	33	7.7	6.5	9.5	0.84	20.3
Barium[2]	21-24	43/50	19.8	260	30.0	1.8	43.0	0.18	99.4
Beryllium[1]	1-1.2	9/50	0.3	1.3	0.57	0.19	0.63	0.33	0.95
Cadmium[1]	0.36-1.2	11/50	0.33	2.9	0.66	0.49	0.80	0.75	1.6
Calcium[2]	NA	50/50	500	97,000	3,411	2.0	5,256	0.08	12,995
Chromium[4]	NA	50/50	5.0	69.7	32.0	8.4	34.4	0.10	48.5
Cobalt[1]	5-6	20/50	4.3	11.4	4.3	2.3	5.0	0.54	2.6
Copper[1]	5.5-5.6	48/50	4.2	49	15.7	12.1	19.1	0.77	39.3
Iron[1]	NA	50/50	10	20,800	10,247	3,859	11,410	0.38	17,791
Lead[2]	NA	50/50	3.3	180	20.7	2.4	41.2	0.29	118
Magnesium[2]	NA	50/50	500	8,820	2,540	1.6	3,192	0.06	6,231
Manganese[1]	NA	50/50	5.0	330	136.2	74.1	157.3	0.54	281
Mercury[1]	0.05-0.11	5/9	0.05	0.18	0.08	0.06	0.12	0.72	0.15

TABLE 3 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR YELLOW AREA
DATA SUMMARY

Chemical	SQL	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Mean Concentration	Standard Deviation	95 UCL	CV	80LCL/95th percentile
Nickel(4)	NA	50/50	5.0	71.1	27.7	9.9	30.5	0.36	46.7
Potassium(1)	NA	50/50	500	1,700	914	289	996	0.32	1,479
Silver(4)	0.48-6	6/50	0.52	30	2.9	4.1	4.1	1.4	11.0
Sodium(1)	500-610	11/50	232	1,380	358	260	432	0.73	867
Titanium(1)	NA	41/41	280	663	456	77.1	480.2	0.17	603
Vanadium(1)	NA	50/50	15.6	50.0	25.5	7.9	27.7	0.31	40.9
Zinc(1)	NA	50/50	17.0	140.0	46.9	31.6	55.8	0.67	108.6
Polycyclic Aromatic Hydrocarbons (ug/kg)									
Benzo(a)pyrene(3)	84-6,700	1/51	24	24	400.4	487.1	537.4	1.2	NA
Benzo(g,h,i)perylene(3)	96-6,700	1/51	19	19	402.2	485.9	538.9	1.2	NA
Chrysene(3)	60-6,700	2/51	22	130	398.2	488.7	535.6	1.2	NA
Fluoranthene(3)	48-6,700	3/51	30	790	407.0	492.1	545.4	1.2	NA
Indeno(1,2,3-c,d)-pyrene (3)	96-6,700	1/51	21	21	402.2	485.9	538.9	1.2	NA
Phenanthrene(3)	48-6,700	2/51	120	200	401.9	486.7	538.8	1.2	NA
Pyrene(3)	48-6,700	4/51	33	900	411.1	492.8	549.7	1.2	NA

TABLE 3 (CONTINUED)
NAS ALAMEDA
BACKGROUND DATA FOR YELLOW AREA
DATA SUMMARY

Notes:

SQL	Sample Quantitation Limit
95 UCL	95 percent Upper Confidence Limit of the Mean Concentration
CV	Coefficient of Variation
80LCL/95th percentile	80th percent Lower Confidence Limit of the 95th percentile of the distribution
NA	Not applicable
mg/kg	milligrams per kilogram
ug/kg	micrograms per kilogram

(1) Data normally distributed
(2) Data lognormally distributed. Calculated CV and 80LCL/95th percentile for natural logarithm-transformed data.
(3) Too few detections to determine distribution. Calculated CV and 80LCL/95th percentile from arithmetic mean and standard deviation.
(4) Data are not normally or lognormally distributed. Calculated CV and 80LCL/95th percentile from arithmetic mean and standard deviation

ATTACHMENT A
OUTLIER TEST CALCULATIONS

Zinc - Outlier Evaluation Using Rosner's Test					
Blue Area					
Zinc is Lognormally Distributed					
		Potential	Potential		
Data:		Outlier 1	Outlier 2		
Chemical	Result	LN Result		Units	Qualifier
ZINC	17.80000	2.87920	2.87920	MG/KG	
ZINC	17.80000	2.87920	2.87920	MG/KG	
ZINC	19.50000	2.97041	2.97041	MG/KG	
ZINC	22.10000	3.09558	3.09558	MG/KG	
ZINC	19.00000	2.94444	2.94444	MG/KG	
ZINC	20.00000	2.99573	2.99573	MG/KG	
ZINC	19.00000	2.94444	2.94444	MG/KG	
ZINC	18.30000	2.90690	2.90690	MG/KG	
ZINC	17.90000	2.88480	2.88480	MG/KG	
ZINC	17.70000	2.87356	2.87356	MG/KG	
ZINC	21.40000	3.06339	3.06339	MG/KG	
ZINC	17.90000	2.88480	2.88480	MG/KG	
ZINC	17.30000	2.85071	2.85071	MG/KG	
ZINC	15.70000	2.75366	2.75366	MG/KG	
ZINC	17.20000	2.84491	2.84491	MG/KG	
ZINC	17.10000	2.83908	2.83908	MG/KG	
ZINC	20.20000	3.00568	3.00568	MG/KG	
ZINC	22.40000	3.10906	3.10906	MG/KG	
ZINC	32.40000	3.47816	3.47816	MG/KG	
ZINC	40.40000	3.69883	3.69883	MG/KG	
ZINC	54.20000	3.99268	3.99268	MG/KG	
ZINC	31.80000	3.45947	3.45947	MG/KG	
ZINC	27.40000	3.31054	3.31054	MG/KG	
ZINC	34.90000	3.55249	3.55249	MG/KG	
ZINC	63.40000	4.14946	4.14946	MG/KG	
ZINC	80.60000	4.38950	4.38950	MG/KG	
ZINC	33.30000	3.50556	3.50556	MG/KG	
ZINC	53.50000	3.97968	3.97968	MG/KG	
ZINC	27.50000	3.31419	3.31419	MG/KG	
ZINC	17.70000	2.87356	2.87356	MG/KG	
ZINC	17.40000	2.85647	2.85647	MG/KG	
ZINC	84.00000	4.43082	4.43082	MG/KG	
ZINC	33.00000	3.49651	3.49651	MG/KG	
ZINC	30.00000	3.40120	3.40120	MG/KG	
ZINC	20.00000	2.99573	2.99573	MG/KG	
ZINC	67.00000	4.20469	4.20469	MG/KG	
ZINC	23.00000	3.13549	3.13549	MG/KG	
ZINC	30.00000	3.40120	3.40120	MG/KG	
ZINC	25.00000	3.21888	3.21888	MG/KG	
ZINC	25.00000	3.21888	3.21888	MG/KG	
ZINC	17.00000	2.83321	2.83321	MG/KG	
ZINC	14.00000	2.63906	2.63906	MG/KG	
ZINC	26.00000	3.25810	3.25810	MG/KG	
ZINC	17.00000	2.83321	2.83321	MG/KG	

Zinc Outlier Evaluation Using Rosners Test
Blue Area

ZINC	20.00000	2.99573	2.99573	MG/KG	
ZINC	17.00000	2.83321	2.83321	MG/KG	
ZINC	26.00000	3.25810	3.25810	MG/KG	
ZINC	22.30000	3.10459	3.10459	MG/KG-DRY	
ZINC	31.50000	3.44999	3.44999	MG/KG-DRY	
ZINC	27.40000	3.31054	3.31054	MG/KG-DRY	
ZINC	21.10000	3.04927	3.04927	MG/KG	J
ZINC	74.40000	4.30946	4.30946	MG/KG	J
ZINC	34.20000	3.53223	3.53223	MG/KG	J
ZINC	19.90000	2.99072	2.99072	MG/KG	J
ZINC	21.00000	3.04452	3.04452	MG/KG	J
ZINC	26.40000	3.27336	3.27336	MG/KG	J
ZINC	18.70000	2.92852	2.92852	MG/KG	J
ZINC	32.50000	3.48124	3.48124	MG/KG	
ZINC	27.80000	3.32504	3.32504	MG/KG	
ZINC	26.60000	3.28091	3.28091	MG/KG	
ZINC	20.20000	3.00568	3.00568	MG/KG	
ZINC	21.40000	3.06339	3.06339	MG/KG	
ZINC	24.80000	3.21084	3.21084	MG/KG	
ZINC	26.80000	3.28840	3.28840	MG/KG	
ZINC	30.40000	3.41444	3.41444	MG/KG	
ZINC	40.60000	3.70377	3.70377	MG/KG	
ZINC	19.90000	2.99072	2.99072	MG/KG	
ZINC	24.00000	3.17805	3.17805	MG/KG	
ZINC	24.90000	3.21487	3.21487	MG/KG	
ZINC	60.20000	4.09767	4.09767	MG/KG	
ZINC	29.30000	3.37759	3.37759	MG/KG	
ZINC	36.90000	3.60821	3.60821	MG/KG	
ZINC	18.10000	2.89591	2.89591	MG/KG	
ZINC	19.20000	2.95491	2.95491	MG/KG	
ZINC	56.90000	4.04130	4.04130	MG/KG	
ZINC	27.50000	3.31419	3.31419	MG/KG	
ZINC	39.30000	3.67122	3.67122	MG/KG	
ZINC	29.80000	3.39451	3.39451	MG/KG	
ZINC	27.00000	3.29584	3.29584	MG/KG	
ZINC	61.40000	4.11741	4.11741	MG/KG	
ZINC	20.90000	3.03975	3.03975	MG/KG	
ZINC	41.40000	3.72328	3.72328	MG/KG	
ZINC	32.00000	3.46574	3.46574	MG/KG	
ZINC	23.00000	3.13549	3.13549	MG/KG	
ZINC	25.00000	3.21888	3.21888	MG/KG	
ZINC	17.00000	2.83321	2.83321	MG/KG	
ZINC	19.00000	2.94444	2.94444	MG/KG	
ZINC	17.00000	2.83321	2.83321	MG/KG	
ZINC	316.00000	5.75574			
MEAN		3.29561	3.26765		
ST. DEV.		0.48752	0.41002		
Rk		5.04622	2.83683		
Critical Value at alpha = 0.05		3.34000	3.33000		

Zinc Outlier Evaluation Using Rosners Test
Blue Area

Potential Outlier 1 is 316 mg/kg				
Potential Outlier 2 is 84 mg/kg				
Based on these results, the highest hit of Zn (316) is an outlier				
but no other value is an outlier				

Beryllium - Outlier Evaluation Using Rosner's Test								
Pink Area								
Data:						Potential	Potential	
Sample	Depth Range		Chemical	Conc.	Units	Qualifier	Outlier 1	Outlier 2
280-RA-033	0.0	1.5	BERYLLIUM	0.96000	MG/KG	UJ		
280-RA-034	2.5	3.5	BERYLLIUM	0.89000	MG/KG	UJ		
280-RA-035	5.0	6.0	BERYLLIUM	0.62000	MG/KG	UJ		
280-RA-039	0.0	1.0	BERYLLIUM	0.88000	MG/KG	UJ		
280-RA-040	2.0	3.0	BERYLLIUM	0.53000	MG/KG	UJ		
280-RA-041	3.5	4.5	BERYLLIUM	0.25000	MG/KG	U		
280-RA-042	0.0	1.5	BERYLLIUM	0.54000	MG/KG	UJ		
280-RA-043	2.5	3.5	BERYLLIUM	0.54000	MG/KG	UJ		
280-RA-044	5.0	6.0	BERYLLIUM	0.36000	MG/KG	UJ		
280-RA-045	0.0	1.5	BERYLLIUM	0.55000	MG/KG	UJ		
280-RA-046	2.5	3.5	BERYLLIUM	0.52000	MG/KG	UJ		
280-RA-047	5.0	6.0	BERYLLIUM	0.54000	MG/KG	UJ		
280-RA-048	0.0	1.5	BERYLLIUM	0.67000	MG/KG	J	0.67000	0.67000
280-RA-049	2.5	3.5	BERYLLIUM	0.61000	MG/KG	J	0.61000	0.61000
280-RA-050	5.0	6.0	BERYLLIUM	0.38000	MG/KG	J	0.38000	0.38
B06-07-000	0.5	1.0	BERYLLIUM	0.56799	MG/KG		0.56799	0.56799
B06-07-002	2.0	3.3	BERYLLIUM	0.34100	MG/KG		0.34100	0.341
B06-07-008	8.0	9.5	BERYLLIUM	0.16200	MG/KG	U		
B06-08-000	1.0	1.5	BERYLLIUM	0.31600	MG/KG		0.31600	0.316
B06-08-002	2.0	3.0	BERYLLIUM	0.60300	MG/KG		0.60300	0.603
B06-08-007	6.5	7.5	BERYLLIUM	0.77900	MG/KG		0.77900	0.779
B07B-02-000	0.5	1.5	BERYLLIUM	0.89900	MG/KG		0.89900	0.899
B07B-02-004	3.5	5.0	BERYLLIUM	1.25000	MG/KG		1.25000	1.25
B10-04-000	0.5	1.0	BERYLLIUM	0.68999	MG/KG		0.68999	0.68999
B10-04-005	5.0	6.0	BERYLLIUM	0.15000	MG/KG	U		
B12-08-000	0.5	1.0	BERYLLIUM	2.29000	MG/KG	J	2.29000	
B12-08-004	3.5	5.0	BERYLLIUM	0.95400	MG/KG	J	0.95400	0.954
B12-08-010	9.5	10.0	BERYLLIUM	1.05000	MG/KG	J	1.05000	1.05
F10 [0.0-0.0]	0.0	0.0	BERYLLIUM	1.00000	MG/KG	U		
M-006A-0	2.0	2.5	BERYLLIUM	0.94600	MG/KG		0.94600	0.946
M-006A-005	3.5	4.5	BERYLLIUM	1.18000	MG/KG	J	1.18000	1.18
M-101A-004	2.0	3.5	BERYLLIUM	0.86500	MG/KG	J	0.86500	0.865
M-102A-004	2.0	3.3	BERYLLIUM	0.57200	MG/KG	J	0.57200	0.572
M-106A-0	0.0	0.0	BERYLLIUM	0.24600	MG/KG		0.24600	0.246
M-106A-003	2.0	3.0	BERYLLIUM	0.60900	MG/KG	J	0.60900	0.609
M-107A-0	0.0	0.0	BERYLLIUM	0.26300	MG/KG		0.26300	0.263
M-107A-002	0.5	2.0	BERYLLIUM	0.53100	MG/KG	J	0.53100	0.531
M-109A-0	0.0	0.0	BERYLLIUM	1.01000	MG/KG		1.01000	1.01
M-109A-007	5.5	6.3	BERYLLIUM	0.83200	MG/KG	J	0.83200	0.832
M-110A-003	1.5	3.0	BERYLLIUM	1.47000	MG/KG	J	1.47000	1.47
M-111A-0	0.5	0.0	BERYLLIUM	1.35000	MG/KG	J	1.35000	1.35
M-111A-003	2.0	3.5	BERYLLIUM	0.38000	MG/KG	J	0.38000	0.38
M-BG1-002	2.0	2.5	BERYLLIUM	0.79200	MG/KG		0.79200	0.792
M-BG1-003	3.0	3.5	BERYLLIUM	0.76300	MG/KG	U		
M-BG1-004	5.0	5.5	BERYLLIUM	0.63200	MG/KG	U		
M-BG2-002	2.0	2.5	BERYLLIUM	0.53500	MG/KG	U		

M-BG2-005	5.0	5.5	BERYLLIUM	0.60400	MG/KG	U			
M-BG4-002	2.0	2.5	BERYLLIUM	0.52700	MG/KG	U			
M-BG4-007	7.5	8.0	BERYLLIUM	0.60700	MG/KG		0.60700	0.607	
M-BG4-010	10.0	10.5	BERYLLIUM	0.57600	MG/KG	U			
M103-A	5.0	6.5	BERYLLIUM	0.18000	MG/KG	U			
M103-B	0.0	0.5	BERYLLIUM	0.16000	MG/KG	U			
M105-A	5.5	7.0	BERYLLIUM	0.19000	MG/KG	U			
M105-B	0.0	0.5	BERYLLIUM	0.16000	MG/KG	U			
M108-A	5.0	6.5	BERYLLIUM	0.19000	MG/KG	U			
M108-B	0.0	0.5	BERYLLIUM	0.17000	MG/KG	U			
	Rk is test value for Rosner's Test					**Mean**	0.79493	0.741535	
						Stdev	0.4323391	0.3287809	
						Rk	3.458095	2.215655	
						Critical value at alpha =0.05 is 2.91			
						n=30			
				Based on these results, the highest hit of Be (2.29 mg/kg)					
				is an outlier but no other value is an outlier					

Lead - Outlier Evaluation Using Rosner's Test						
Yellow Area						
LEAD	752.00	6.62	MG/KG		**Potential**	**Potential**
LEAD	180.00	5.19	MG/KG		**Outlier 1**	**Outlier 2**
LEAD	9.20	2.22	MG/KG	GEOMETRIC MEAN	22.24489	20.73244
LEAD	12.00	2.48	MG/KG	MEAN LN DATA	3.10	3.03
LEAD	21.00	3.04	MG/KG	N	51	50
LEAD	14.00	2.64	MG/KG	GEOM. STDEV	1.012707	0.887971
LEAD	27.00	3.30	MG/KG	Rosner's Test at alpha = 0.05		
LEAD	34.00	3.53	MG/KG	Rk	3.476448	2.433928
LEAD	23.00	3.14	MG/KG	Critical Value	3.13	3.12
LEAD	29.00	3.37	MG/KG	MAXIMUM	752.00	180
LEAD	28.00	3.33	MG/KG	Ln transformed	6.622736	5.192957
LEAD	13.00	2.56	MG/KG			
LEAD	21.00	3.04	MG/KG	**Results indicate that the value of 752 mg/kg**		
LEAD	23.00	3.14	MG/KG	**is an outlier but no other values are outliers**		
LEAD	9.50	2.25	MG/KG			
LEAD	28.00	3.33	MG/KG			
LEAD	82.00	4.41	MG/KG			
LEAD	51.00	3.93	MG/KG			
LEAD	21.00	3.04	MG/KG			
LEAD	10.00	2.30	MG/KG			
LEAD	14.00	2.64	MG/KG			
LEAD	18.00	2.89	MG/KG			
LEAD	17.00	2.83	MG/KG			
LEAD	34.00	3.53	MG/KG			
LEAD	35.00	3.56	MG/KG			
LEAD	19.00	2.94	MG/KG			
LEAD	6.70	1.90	MG/KG			
LEAD	12.00	2.48	MG/KG			
LEAD	13.00	2.56	MG/KG			
LEAD	8.70	2.16	MG/KG			
LEAD	10.00	2.30	MG/KG			
LEAD	23.00	3.14	MG/KG			
LEAD	13.00	2.56	MG/KG			
LEAD	32.00	3.47	MG/KG			
LEAD	12.00	2.48	MG/KG			
LEAD	49.00	3.89	MG/KG			
LEAD	12.00	2.48	MG/KG			
LEAD	23.00	3.14	MG/KG			
LEAD	63.50	4.15	MG/KG-DRY			
LEAD	14.60	2.68	MG/KG-DRY			
LEAD	94.70	4.55	MG/KG-DRY			
LEAD	27.40	3.31	MG/KG-DRY			
LEAD	19.50	2.97	MG/KG-DRY			
LEAD	4.04	1.40	MG/KG-DRY			
LEAD	27.50	3.31	MG/KG-DRY			
LEAD	3.93	1.37	MG/KG-DRY			

LEAD	3.34	1.21	MG/KG-DRY						
LEAD	5.00	1.61	MG/KG						
LEAD	97.00	4.57	MG/KG						
LEAD	170.00	5.14	MG/KG						
LEAD	60.00	4.09	MG/KG						

NAS ALAMEDA BACKGROUND ASSESSMENT MEETING MINUTES

Date: February 26, 1997
Time: 9:00 a.m.
Location: Naval Air Station Alameda

Participants	Organization
Teresa Bernhard	EFA West, Alameda
Camille Garibaldi	EFA West, Alameda
Steve Edde	EFA West, Alameda
Henry Gee	EFA West, Alameda
Ann Klimek	EFA West, Alameda
Dr. James Polisini	Department of Toxic Substance Control (DTSC)
Tom Lanphar	DTSC
Dan Murphy	DTSC
David Rist	DTSC
Anna-Marie Cook	U.S. Environmental Protection Agency (EPA)
James Ricks	EPA
Tom Huetteman	EPA
Lyn Suer	Regional Water Quality Control Board (RWQCB)
Theresa Lopez	Terranext, Inc.
Peter Boucher	PRC Environmental Management, Inc.

Steve Edde of the Navy opened the meeting, reviewed the agenda, had the participants introduce themselves, and emphasized the need to move forward with the remedial process.

Theresa Lopez of Terranext, Inc. described how the background data set was developed. The Navy did not collect background samples separately, but took them from the remedial investigation (RI) data set. It was difficult to find on-base locations for collecting background samples. The RI data revealed different soil types across the installation. Three areas with different soil types were identified and described using the Wilcoxon Rank Sum (WRS) statistical test, which does not depend on the distribution of the background data. The areas were also identified through geochemical correlations of various metals normalized against iron (Fe) and manganese (Mn). The area along the Oakland Inner Harbor (OIH) was made part of the pink area based on the assumption that the fill came from the OIH. The three areas are composed of fill and were also based on historical aerial photographs.

Dr. James Polisini of the DTSC inquired how the WRS test was used to distinguish between the different areas and requested more detail about the process. Ms. Lopez described how Mn and Fe were analyzed first to ensure all samples contained relatively consistent concentrations. Then, assuming Fe and Mn are basic soil elements, other metals were correlated with Fe and Mn.

Ms. Lopez described the process of identifying data for the three areas (the three areas were designated by blue, yellow, and pink on a map). Samples were eliminated from sites with 1) previous metals use, 2) history of industrial use of polycyclic aromatic hydrocarbons (PAH), and 3) previous volatile organic compounds (VOC), polychlorinated biphenyls (PCB), and fuel usage. A list of the remaining samples was listed in Table 1 of the Navy handout. Ms. Lopez went on to explain that not all constituents were analyzed in the blue area. If any boring had samples containing organic chemicals (that were determined not to be laboratory contaminants), no samples from that borehole were used.

Tom Lanphar of the DTSC asked if samples came from petroleum sites in the blue area. Ms. Lopez explained that some samples came from IR sites, usually those IR sites that were mainly petroleum release sites. However, each sample selected was from a borehole with no fuel related organic chemicals in the borehole. Mr. Lanphar requested that this be recorded in the meeting minutes.

Ms. Lopez reviewed a flowchart from the NAS Alameda background methodology document showing the methodology developed for chemical of concern selection based on background. The flowchart describes determining data distribution, identifying geochemical correlations, and statistical hypothesis tests.

Tom Huetteman of the EPA asked how elevated detection limits were addressed. Ms. Lopez said they were included in the data at one-half the detection limit.

Mr. Lanphar asked if the Navy would provide the 80/95 values as an action item. Camille Garibaldi of the Navy responded that the 80/95 values are of interest and will be included in the data screening as a hot spot analysis. Ms. Garibaldi emphasized that she wanted to focus on the data that the Navy was proposing as a background data set.

Mr. Lanphar requested further explanation of the use of hot spot analysis in the risk assessment. Ms. Lopez explained that the Tier 1 background screen of the Environmental Baseline Survey (EBS) tiered screening is the same as a hot spot analysis in the human health risk assessment, comparing the 80/95 of the background data set to the parcel data. She also explained the difference between the 95 percent upper confidence limit (95 UCL) and the 80/95 values.

Mr. Lanphar inquired how the background data set affects the outcome of the statistical tests. Dan Murphy of the DTSC asked at which stage would constituents be eliminated and which would be carried into the risk assessment. Mr. Huetteman explained that the objectives of the hot spot analysis and tests such as the WRS are different. He questioned why the meeting was focused on the ranges of the data (for example, maximum and minimum values) and not the distribution of data, which is critical to selecting statistical tests. Ms. Garibaldi explained the use of both methods and how maintaining the 80/95 or Abright line@ method and statistical testing combined provides the most complete data analysis.

Mr. Lanphar stated that the Navy can conduct more background analysis because it can afford it and that the method being used is special, and different from what other parties use that are subject to DTSC regulation. Ms. Bernhard emphasized that the Navy wants to use the best science and reduce errors. Ms. Garibaldi said that the statistical approach is not a new approach and that the EPA recommends using different statistical methods.

Anna-Marie Cook of the EPA asked how different statistical tests may produce different results depending on the data. Mr. Huetteman explained that some statistical tests focus on the highest values (for example, the Gehan test versus the WRS test). Ms. Lopez added that the tests are not interchangeable and, for example, certain tests cannot be run on log-normally distributed data.

Mr. Murphy and Mr. Lanphar discussed the lead data and suggested eliminating the maximum lead (Pb) detection of 752 parts per million (ppm). Ms. Garibaldi was comfortable with elimination of the lead value of 752 ppm in the yellow area as an outlier.

Mr. Lanphar stated for the record that data should be screened against preliminary remediation goals (PRG), and that arsenic (As) and beryllium (Be) often exceed PRG values. He then reviewed data used as background data for sites he selected from around the bay area. He emphasized that the data were assembled using different methods, such as collecting data in the site area (Hercules), and that some focused on certain metals, such as As, Be, and Pb. The averages in the DTSC handout table are the arithmetic mean. The following comments were made regarding the data.

The I-880 data are from fill material.

The data from East Bay Hills were from a Resource Conservation and Recovery Act (RCRA) investigation.

The San Leandro data are from a wetland area and were purposefully collected (As 20.2 ppm, Be 0.81 ppm, Pb 166 ppm).

North Santa Clara (As 20 ppm, Be 3.2 ppm, Pb 54 ppm).

Three different soil types were presented for the Presidio.

Mr. Lanphar concluded that the soil As range in the bay area is a maximum of 19-20 ppm, Be is 1.1 to 3.2 ppm, and Pb is up to 220 ppm, but usually less than 100 ppm. Dr. Polisini added that Be background values seem to be around 1.1 ppm (0.9 - 1.3 ppm) at Navy sites. Lyn Suer of the RWQCB added that the Regional Monitoring Program data indicate background levels in marine sediment of 18.2 ppm for As, 50.6 ppm for Pb, and 0.96 ppm for Ag.

Ms. Garibaldi requested the back up data for I-880. Mr. Lanphar agreed to copy and mail the data by Friday, February 28, 1997.

Mr. Lanphar stated that the As maximum concentrations of 33 ppm and 24 ppm observed at NAS Alameda are above what the state has accepted in the past (19-20 ppm).

Ann Klimek of the Navy asked how the DTSC background data presented by Mr. Lanphar would be used. Mr. Lanphar stated that the state=s data are from the Bay Area, and that some of the data may be more significant or applicable than others. NAS Alameda is built on fill, and the state=s data will be used to see if NAS Alameda=s soil concentrations are elevated above those of the Bay Area.
Mr. Murphy stated that later, when identifying COCs and assessing risks, the risk assessment will evaluate incremental risk above background. Dr. Polisini added that site values would be compared to Aambient@ values. Mr. Murphy emphasized that agreement was needed on the background data set, and that would facilitate decision making. Ms. Lopez emphasized that the goal is to first agree on the Navy=s proposed data set.

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Mr. Edde opened the afternoon session by explaining that Ms. Lopez was listing the Navy=s and the state=s background values on a flipchart. (The tables from the flipchart were reproduced and attached to these meeting minutes). Mr. Huetteman emphasized agreement was needed on the Navy=s background data set. Ms. Garibaldi added that the statistical methods proposed for the background analysis are final, and that the Navy would be thorough in its evaluation.

Ms. Lopez reviewed and compared the As data to the state=s data for the yellow, blue, and pink areas and concluded that the data sets were not very different (see attached tables). Mr. Murphy pointed out the East Bay Hills value for As of 51 ppm. Mr. Huetteman noted that people residing in the East Bay Hills receive a higher As exposure than people that live closer to the bay.

Dr. Polisini asked if there was an As contaminated site at NAS Alameda, and noted that the maximum value of 33 ppm is at about the 99th percentile of the background data set, which indicates there may be no As contaminated sites.

Mr. Murphy stated that the difference between a maximum of 19-24 ppm As and 33 ppm Afeels@ like the difference between background values and elevated values. He stated that what the Navy was suggesting with regard to As is not consistent with the way his agency has regulated everyone else in the bay area. He indicated a reluctance to change the way the agency has regulated elsewhere.

Lyn Suer proposed eliminating the upper values of 33 and 28 ppm. Camille Garibaldi stated that the Navy cannot eliminate values that are not outliers, and that those are valid samples. She commented on the statement by Dr. Polisini who indicated that there don=t appear to be As contaminated sites at the base. Mr. Lanphar said Peter Lynch has indicated that the Navy brought fill from the hills and that Rich Halket (PRC) said there was a layer of red soil under the roads at NAS Alameda. Mr. Lanphar said this may indicate that the As value of 33 ppm may not be bay fill.

Dr. Polisini asked if the 33 ppm was an outlier and stated that if it wasn=t, it couldn=t be eliminated. Ms. Lopez stated that it was not an outlier.

Mr. Murphy and Dr. Polisini emphasized that they need the 80/95 value for As. Mr. Murphy added that waiving the 19 ppm As value exceeded his authority.

Mr. Huetteman asked why the group was so concerned about As and said it seemed we=re micromanaging risk in an unreasonable way. He said the risk as based on the 95 UCL is the issue.

Mr. Murphy indicated agreement with Ms. Garibaldi that the data set seems reasonable but the Navy should present the risk of As for all sites, even when As is screened out.

Ms. Garibaldi indicated the 80/95 issue should be discussed later; a decision should be made on the data set first. Based on the comments of the group, she didn=t want to throw out data that could lead to error. She added that she compared the data sets and they were not very different.

Ms. Lopez presented the Be data and the Navy agreed to test the value of 2.3 ppm in the pink area as an outlier. If it was not an outlier, then the Navy would look at the rest of the sample. Mr. Lopez then presented the data for Pb and there was general agreement that the Pb data set was appropriate. The Navy agreed to test the silver (Ag) value of 30 ppm in the yellow area as an outlier.

Mr. Huetteman asked how metals with only 1-2 detects would be addressed. Mr. Lopez said the Navy was hesitant to drop them from the background assessment and assume they were site related. Titanium was only sampled in one area. Such metals will be left in the table but not subject to statistical tests. Antimony, selenium, thallium, titanium, and silver in the blue area will be addressed in the uncertainty section of the risk assessment.

Ms. Suer added that she was concerned about the zinc value of 316 ppm in the blue area and the silver value of 30 ppm in the yellow area.

Ms. Garibaldi started discussion on the PAH background data assembled by the Navy. Dr. Polisini asked how PAH data will be used and whether the PAHs will be carried through and a risk calculated. Ms. Garibaldi responded yes, PAHs will be carried through the risk assessment, and background risk will be compared to site risk for PAHs.

Mr. Lanphar stated he didn=t think PAH background should be established for the base. Ms. Garibaldi stated that risk assessment will focus on incremental risk. Mr. Lanphar stated that the frequency of detection of the PAH stated data was too low to be useful in assessing background. Ms. Cook agreed that the frequency of detection was low. Ms. Suer added that the Regional Monitoring Program (RMP) found PAHs in the bay sediments of 300 parts per billion.

Mr. Lanphar stated he was concerned about the blue area which has fuel lines and fuel farms. Ms. Lopez stated that petroleum is associated with a few specific PAH=s such as naphthalene or 2-methnapthalene. Ms. Garibaldi stated that the PAHs could be treated like the inorganics with low frequency of detection. Mr. Lanphar did not agree with the Navy=s approach on PAHs. He stated that reaching a consensus on how PAH levels were approached was necessary before completing a risk assessment.

Ms. Cook suggested moving forward and looking at the results of the risk assessment. Mr. Lanphar did not agree with the suggestion and reiterated that there was not enough PAH data to estimate background.

Ms. Garibaldi said we should use the PAH ranges from the PG&E report as Abackground@, carry PAHs through the risk assessment, and compare the site-specific ranges and background ranges in the risk management section. She said the Navy must consider all data in the risk management decision and that sites with releases will be obvious.

Ms. Cook asked about the difference between assessing background before conducting the risk assessment versus after. Ms. Garibaldi reiterated that the Navy wants to avoid screening out chemicals at the end of the risk assessment without a scientific explanation.

Teresa Bernhard of the Navy asked what the regulatory agencies concern was regarding the background approach, and whether it was risk communication.

James Ricks of the EPA reminded the group of partnering and said those in the meeting may have to take a risk and go forward based on trust.

Mr. Lanphar reiterated that the DTSC needs the 80/95 values to evaluate the NAS Alameda background data set. Ms. Garibaldi reiterated that the 80/95 values would be provided, but the Navy is confident of the proposed data set. She expressed concern about providing the 80/95 values as a tool to evaluate the appropriateness of the background data set.

Mr. Murphy stated he understood that the Navy wanted agreement on the data but he could not agree.

Ms. Bernhard asked if the agencies could agree with the statement AWith the exception of As and Be and PAHs, the agencies agree with data set@? The agencies agreed with the statement.

Ms. Garibaldi stated she had confidence in the procedure, and when the risk assessment was available, risk management decisions would be able to be made realizing that the base was constructed on fill. She stated the Navy=s and the DTSC=s data sets weren=t significantly different, and that the Navy will use the PAH data not to screen contaminants but as comparative data in the risk management process.

Mr. Murphy said he could agree with the statement that AIf there is a decision that background can be estimated [for PAHs], the data would not be used to screen out chemicals, but as a point of discussion in the risk management process@.

Ms. Bernhard stated the action items from the meeting and agreed to produce a list and fax it to the attendees. The meeting was adjourned by Mr. Edde at approximately 4 p.m.